The HANFORD REACH

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A publication of the U.S. Department of Energy for all Hanford Site employees

Hanford's B Reactor: its distinguished history, its uncertain future

Veil of secrecy surrounded wartime B Reactor

George Rangel, BHI

In the winter of 1941, 21-year-old Carol Roberts was resting in bed after a nursing-school night shift in Pueblo, Colo., when she heard a radio broadcast that would alter her life.

"My heart just stopped," said Roberts, now a Richland resident. "I never expected the United States would be bombed. Even today I tear up. At the time, I didn't know where my future was headed."

Roberts' recollection was of Dec. 7, 1941, the day Japanese forces bombed the Pearl Harbor naval base in Hawaii and sent the U.S. into World War II. Her story, and others like hers, will forever be closely linked to the Hanford Site and the creation of its historic B Reactor.

"At that point the war had become very real for me," Roberts said. "It was like I lost my breath, and couldn't breathe again until it was over."

Roberts' husband, Clifford, an airman first class in the Army Air Corps, was eventually stationed in England. He fought on the beaches at Normandy in the D-Day invasion of June 6, 1944.

While others work to determine the future of B Reactor, workers with the Environ-mental Restoration Contractor team remove asbestos from its roof as part of an effort to reduce hazards at the facility. The mitigation of B Reactor hazards has allowed more than 450 people to visit the historic facility over the past year. The future of the reactor is the subject of a public meeting tomorrow night at the Richland Public Library, and public comments on options for the reactor will be accepted until July 17.

Meanwhile, back in Pueblo, Roberts' father, John Budnar, was working at a DuPont coal-mining plant in Denver when he was reassigned in Dec. 1943 to a new DuPont-sponsored project in southeastern Washington state. Roberts and her family moved to Washington later that summer, and she became a teacher and later a pediatric nurse at Kadlec Hospital.

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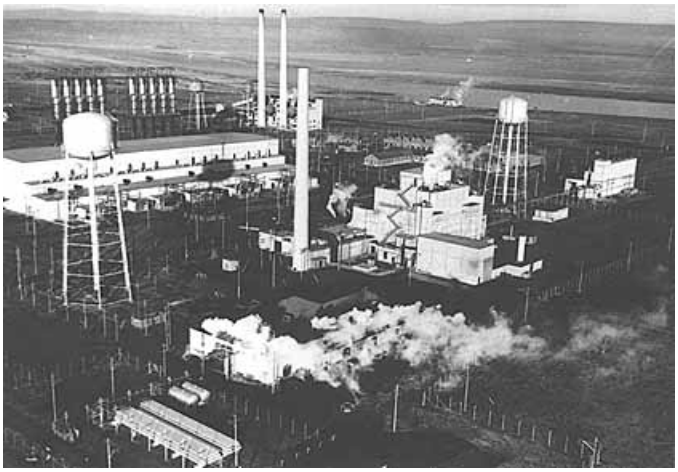
"My father was an electrician, and a good one, too," Roberts said. "Being an electrician during that time was a fairly new profession, so his skills made him sought after. The only thing that puzzled him was he didn't know what he would be doing."

Secret project

The Hanford Engineer Works was the third and final piece of a $500 million triad of nuclear testing facilities under the Manhattan Project approved by President Franklin D. Roosevelt in 1942. The others were in Los Alamos, N.M, and at Oak Ridge on Tennessee's Clinch River.

Roosevelt's approval for nuclear testing came after a 1939 letter signed by Albert Einstein, supporting atomic research. The correspondence informed the President about the potential of atomic weapons and the consequences if the Germans were successful at developing similar technology at the Kaiser Wilhelm Institute in Berlin.



Hanford's B Reactor produced plutonium used in the world's first atomic test explosion and in the atomic bomb dropped on Nagasaki, Japan, during World War II.

The Los Alamos and Oak Ridge testing sites proved to be vital in plutonium-creation methods that would be used in Hanford's B Reactor. But it was the B Reactor that would produce the plutonium used in the world's first atomic explosion, called the "Trinity Test," in July 1945. B Reactor plutonium was used again in the atomic bomb dropped on Nagasaki, Japan, on Aug. 9, 1945 — three days after the first bomb was dropped on Hiroshima. On Aug. 14, the Japanese surrendered and World War II ended.

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Roberts' father and most other Hanford workers weren't sure what they were building in the Mid-Columbia desert. "Most of us were not sure about what we were doing at the time," said John Rector, a machinist who helped make the 2,004 graphite rods that were placed into the reactor block. "The work was straightforward but the reasons were never given, and we didn't really ask either — but thought it had something to do with the war effort."

A few people such as instrument supervisor Dee McCullough of Richland, now 87, worked with the project's top authorities and were

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in on the secret.

"There was this guy working with me at the B Reactor who we called Dr. Farmer," said McCullough, a theater sound engineer before the war. "In secret only a few were told that Dr. Farmer was actually Enrico Fermi. I knew what we were making and what it would be used for, but you kept that type of information to yourself." McCullough was crucial in helping B Reactor reach its design output level of 250 megawatts in February 1945.

During a June 9 tour of B Reactor, Bechtel's Tom Marceau looks on as his 81-year-old mother, Irene Accetta, signs a guest logbook inside the reactor's control room.

Military presence

Along with the secrecy that surrounded the desolate work site 45 miles northwest of Richland, was the constant presence of more than 1,100 military personnel during and after construction of the B Reactor.

"A lot of FBI agents would visit the site," said former Hanford Patrol Chief and Richland resident Paul Beardsley. "There were always men hanging around the restaurants and bars who would sit there and just listen. If someone found out that you were talking too much, you would find a pink slip in your locker the next day and you were fired."

Beardsley arrived at Hanford from Oklahoma, where he worked at a gunpowder plant, three months before B Reactor construction began. He was a musical instrument salesman before the war.

"That's what you did," Beardsley explained. "The country needed everyone's effort during the war. I did my part. I even spent nine months in the Navy, but was brought home after my third child, Janice, was born because an enlisted man couldn't have more than two children."

Beardsley worked at the B Reactor main gate. "There were always two armed guards at the gate," he said. "We checked people as they passed through because everyone had to have proper clearance. We made sure nothing unauthorized was brought in and nothing was taken out. The tools and documents you used on site *stayed* on site and couldn't be taken home."

Roger Rohrbacher, a former instrument engineer in the 100B, 100D and 100F areas, is now a retired 81-year-old Kennewick resident. He said the B Reactor's success lay in overcoming what was once thought impossible. "It was a time when we were at the leading edge of technology. There were entirely new professions springing up at the time. We invented new things, found ways to overcome problems and took care of the unexpected on a daily basis."

Harsh conditions

Even though people tackled the unknown, the creation of the B Reactor involved some enduring and unforgettable hardships, according to Roberts.

"My mother absolutely hated it here," Roberts said. "There was no grass here at the time and the wind would

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create the most horrible dust storms. It seemed as if we were always waiting in line for something — and any group you wanted to form, like a study group, had to be authorized."

Roberts' father was given an unexpected day off in late summer of 1945, so the family went to a nearby Grandview orchard to pick peaches. "The woman who owned the property came out of her home and yelled at us," Roberts recalled. "She called us murderers and kicked us off the orchard. Later that day we listened to the radio and heard that an atomic bomb was dropped on Hiroshima.. There were always people who thought we shouldn't be here. A lot of people lost their homes and sacrificed in the process of making B Reactor and ending the war."

Roberts says she and many others carried a sense of guilt after learning nearly 220,000 died from atomic bombs dropped on Japanese soil. "For the longest time I wondered if we had broken God's commandment. But it was God who helped create the bomb. He gave it to us, and not someone else, because he saw that our country had the compassion and resolve to bring peace to the world."

In November 1945, Roberts was reunited with her husband, who became a power operator at F Reactor. ✦

To express your opinion...

Public meeting: Tuesday, June 26, 2001, 7 -9 p.m
Richland Public Library, Doris Roberts Gallery

Comment period on *Engineering Evaluation/Cost Analysis for the 105-B Reactor Facility* continues through July 17.

Address comments to U.S. Environmental Protection Agency, 712 Swift Blvd., Ste. 5, Richland, WA 99352, or e-mail Faulk.Dennis@epa.gov

Review the document at the Consolidated Information Center, Room 101L, WSU Tri-Cities campus or at **www.bhi-erc.com/projects/s_m/b_reactor.htm**.

Citizens, HAB urge DOE to 'B' active in museum effort

Behind a move to preserve an important piece of Hanford history is the B Reactor Museum Association, a 115-member regional organization. The association promotes the education, public visitation, restoration and exhibition of B Reactor.

While some tours are given at B Reactor, association president Gene Weisskopf hopes the 58-year-old plutonium production facility will become a high-profile national historic museum to join other eastern Washington attractions.

"With the Grand Coulee Dam, a rich Native American culture, agriculture and the world's first nuclear reactor here, it could be part of a very attractive tourism package," Weisskopf said. "Bechtel deserves to take a bow. They are the ones cleaning up the B Reactor, maintaining the facility and making tours possible."

For skeptics who believe interest in the B Reactor is weak, Weisskopf believes it's due to a lack of historical resources to draw people to Hanford's past. "When I first moved here in 1995, I found out that a lot of people didn't know why we had nuclear reactors out here in the first place. But my gut feeling tells me that there would be huge international interest."

Limited tours

Due to budget and scope constraints, tours are provided on a limited basis to technical groups and for educational purposes. But a recent document, the *Engineering Evaluation/Cost Analysis for the 105-B Reactor Facility*, could have a profound impact on the reactor's future. The 55-page proposed cleanup plan provides three potential options for the structure and surrounding landscape:

- No action
- Surveillance and maintenance
- Hazard mitigation for public access.

The no-action option would halt further cleanup of the facility, but Hanford Site controls would still be in place. A surveillance-and-maintenance strategy would continue for another 10 years the work already being done. Hazard mitigation for public access includes full preparation of B Reactor for visitors.

Public input

Public comment on the engineering and cost analyses will be accepted until July 17. Meanwhile, a public meeting is scheduled for June 26 from 7 to 9 p.m. at the Richland Public Library's Doris Roberts Gallery.

"The Environmental Protection Agency is supportive of B Reactor becoming a museum," said Dennis Faulk, project manager for EPA. "Although the Engineering Evaluation and Cost Analysis does not make the reactor a museum, completing hazard mitigation is a step in the right direction."

While the B Reactor Museum Association strongly supports B Reactor as a potential museum, Weisskopf is quick to point out that the association is not the B Reactor's usage authority. "If the B Reactor were to become a museum, it would rely heavily on the support of the government and local people. I'm not an expert on the design of museums, but I think that the community can come up with some pretty good ideas on what they want to do with the B Reactor."

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The Hanford Advisory Board stated its advice in a June 8 letter sent to DOE Richland Operations Manager Keith Klein and the other Tri-Party Agreement signatories. The HAB letter laid the groundwork for the board's ideas on the B Reactor.

The letter supported the "hazards mitigation for public access" option. The HAB endorsed future surveillance and maintenance, mitigation of hazardous substances and allowing public access into more sections of the facility.

Sharing history

On June 9, the museum association sponsored a tour of the reactor for about 80 members and guests. The Saturday event also included dedication of a new flagpole. "For me it was a great opportunity to share the experience," said Bechtel's Tom Marceau, who gave commentary during the bus ride to and from B Reactor.

"My mom came out from Massachusetts, and is 81 years old," Marceau added. "She is from the World War II generation, so the reactor has a special meaning for her. Those are the people who made its history, and they are slowly dying off. Something needs to be done now to preserve the landmark so it can be enjoyed while they are still with us."

With the recent rise of Word War II movies, documentaries, publications and memorial tributes, Weisskopf predicts the B Reactor will provide a glimpse of the Hanford Site's contribution to world history and the war's conclusion. A section about the B Reactor is included in an online DOE book titled *History of the Plutonium Production Facilities at the Hanford Site Historic District, 1943-1990.* The document can be found at **www.hanford.gov/docs/rl-97-1047/**.

"Unfortunately, our country views the Hanford Site as a cleanup project dealing with nuclear waste that has something to do with World War II," Weisskopf said. "When all the buildings at Hanford are torn down and the land is brought back to its original form, the B Reactor will still stand. The B Reactor is the only legacy left to one of the greatest feats in human history, and should be celebrated as such." ✦

B Reactor project spearheaded by ER contractor

In August of last year, the Department of Energy and Bechtel Hanford's Environmental Restoration Contractor team partnered in creating a B Reactor project that is helping maintain the facility while providing a pathway into the new millennium for the world's first full-scale nuclear reactor.

Hanford Site visitors gather around a newly installed flagpole after a dedication June 9. The flag-raising ceremony was part of a tour sponsored by the B Reactor Museum Association.

"DOE deserves a lot of credit for this," said Dru Butler, Bechtel's B Reactor project task lead. "The funding we receive is really vital in allowing the restoration of the B Reactor facility and making it possible for people to come inside this historic structure."

"Bechtel has been able to take care of a lot of miscellaneous safety issues in and around the building itself," said Chris Smith, DOE project manager for both the Interim Safe Storage program and B Reactor. "They have eliminated most of the minor hazards that have hindered people's entrance into certain B Reactor rooms and have given the place a polished appearance."

The B Reactor's roof and exterior ductwork were repaired and restrooms have been made accessible for visitors.

"Our radiological monitoring has allowed us to increase our tour access," Butler said. "The rad control methods in place have also allowed us to decrease the costs associated with visits, and we have reviewed and revised our tour-related procedures. We've repaired the building, but kept the original look and structures intact."

The ERC team's challenge during this fiscal year encompasses three major tasks for B Reactor: 1) preparing a draft document for future hazard mitigation; 2) continuing surveillance and maintenance along with minor repairs; and 3) providing tours for a variety of visitors.

The ERC team, in conjunction with the Environmental Protection Agency and DOE, reviewed the *Engineering Evaluation and Cost Analysis*, or EE/CA (see "Citizens, HAB urge DOE to 'B' active in museum effort," this page).

"The great thing about the EE/CA is that there has never been a formal written effort between the EPA, DOE and ERC on how we could potentially extend the life of the B Reactor," Smith said. "This is a document designed for public input, and it allows for a more complete idea of where we want to proceed in the future."

"This is an opportunity for us to preserve our history," said Don Eckert, Bechtel's 100 Area field supervisor. "Considering most of our work involves the decommissioning and demolition of reactors, it's rewarding to show retired workers and visitors what we've done with the B Reactor when they come on tours."

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B Reactor project spearheaded by ER contractor, cont.

So far, Bechtel has hosted 25 tours since last October. They have brought more than 450 people to the National Historic Engineering Landmark. Visitors have included national DOE officials, international scientists, college and high-school students and Russian officials who inspect and verify treaty requirements.

"Most might agree that the B Reactor is worth preserving for historical interpretation," Smith said, "but the main question is, where does the funding come from? The Department of Energy's commitment lies in cleaning up and restoring the Hanford Site. The work that will continue hazard mitigation at B Reactor falls within the scope of site cleanup. If additional non-cleanup funding is available, then we can look into furthering other museum possibilities for the B Reactor." ✦